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RECENT LITERATURE.

McAtee's 'Woodpeckers in Relation to Trees and Wood Products.'

— In this valuable and interesting publication¹ Mr. McAtee treats exhaustively a subject upon which there has been much need of authentic information. First is considered the damage done by Woodpeckers in general, to trees, telegraph poles and buildings, in excavating for nests — damage which can usually be prevented by furnishing artificial nest boxes and which rarely or never calls for the destruction of the birds. Furthermore the benefit conferred by Woodpeckers, exclusive of the Sapsuckers, in destroying insects, far more than compensates for the damage they do. With the Sapsuckers however, the case is different, and the bulk of Mr. McAtee's report is taken up with a discussion of the depredations of the Yellow-bellied and Red-breasted Sapsuckers (*Sphyrapicus varius* and *ruber*) and their geographic races. The evidence presented seems fully to warrant the author's conclusion, that these birds should be included in the class of injurious species and destroyed whenever caught redhanded. The status of Williamson's Sapsucker (*S. thyroideus*) is still in doubt owing to lack of information. The various species of trees and vines attacked by the Sapsuckers are listed systematically with comments on the character and extent of the damage inflicted, and with numerous excellent illustrations.

In puncturing the bark to reach the sap the birds injure the cambium layer, causing irregularities of growth and distortion of the grain of the wood. Furthermore the punctures admit moisture, bacteria, fungi, etc., which produce stains or decay, rendering the lumber valueless for ornamental or other special uses and sometimes causing the death of the tree.

The annual loss resulting from the Sapsucker's attacks in the United States exceeds a quarter of a million dollars. Mr. McAtee accompanies his condemnation of the Sapsuckers with a word of warning to the effect that "great care should be exercised to distinguish the real offenders, as there are twenty species of Woodpeckers in the United States and only two are under indictment."

Two excellent colored plates by Fuertes illustrate the several species of Sapsuckers, and add to the value and attractiveness of this excellent bulletin.— W. S.

Forbush on the Starling in America.²— In June, 1910, through the coöperation of the Bureau of Biological Survey, U. S. Department of Agri-

¹ Woodpeckers in Relation to Trees and Wood Products. By W. L. McAtee. Bulletin No. 39. Biological Survey, U. S. Department of Agriculture. Issued September 26, 1911.

² Annual Report of the State Ornithologist for the year 1910. Massachusetts State Board of Agriculture. July 11, 1911.

culture, Mr. E. H. Forbush was able to visit the several States in which the Starling has become established, and by personal investigation as well as by correspondence, to secure much historic and economic information concerning the bird, which is here presented. The first successful introduction of the Starling in America seems to have been in 1890, when Eugene Schieffelin liberated 120 birds in Central Park, New York City. The species has now spread over Long Island, New Jersey, Connecticut, and eastern Pennsylvania, although still most abundant in the vicinity of New York; while it has been reported from Odessa, Del.; Springfield, Mass.; Rhinebeck, N. Y., and Millersville, Pa.

As to the relation of the Starling to our native birds Mr. Forbush finds that it drives away such birds as Flickers, Bluebirds and House Wrens, by occupying their nesting places, while it competes actively with our birds for their food supply. In winter especially the flocks of Starlings scour the country so thoroughly, that they must devour most of the supply of food upon which our winter birds are accustomed to subsist. Furthermore, as Mr. Forbush says, "the Starling can give no service that cannot be equally well performed by our own Blackbirds, Meadowlarks, Bobolinks, Sparrows and other birds," while it has already "begun to show a capacity for harmfulness which may be expected to become more prominent as its numbers increase." Accounts of the great damage inflicted upon berry patches and vineyards in Europe, give us some idea of what we may expect from the unfortunate introduction of this undesirable bird.—W. S.

Strong on the Olfactory Organs and the Sense of Smell in Birds.¹

—Dr. Strong's investigations here presented were of two kinds, morphological and experimental. The former consisted of the study and dissection of the heads of sixty-five species representing twenty-seven of the thirty-five orders of existing birds; the material being for the most part that contained in the Senckenbergisches Neurologisches Institute at Frankfort-am-Main, Germany, where every facility was extended to the author by the director, Prof. Ludwig Edinger.

These studies gave evidence that (1) the olfactory organs of birds are of too great size to be set aside as non-functional, but that (2) there is a tendency in the bird series toward retrogression in these organs. In the Emu and Fulmar the olfactory lobes were found to be of relatively great size while in the Corvidæ they are surprisingly minute.

Dr. Strong's experimental work consisted mainly of experiments upon Ring Doves in a covered enclosure with four similar accessory chambers communicating with it. These were so constructed that food placed in them was not visible from the main chamber, and by aid of glass tubes and suitable apparatus air currents could be created from any of the accessory chambers which could be charged with odors as desired.

¹ On the Olfactory Organs and the Sense of Smell in Birds. By R. M. Strong. From the Hull Zoological Laboratory, University of Chicago. *Journal of Morphology*, XX, No. 3, September, 1911, pp. 619-658, pl. i-ii and figs. a-d.